

- III. TYPE OF ACTION:
Educational
- IV. WHERE SHOULD ACTION BE IMPLEMENTED (SPECIFY GENERAL GEOGRAPHIC AREAS)?
Minimum Spatial Extent: Identified fishing communities
- V. WHO IMPLEMENTS ACTION:
An umbrella organization (such as marine debris information type of office [MDIO])implements the action.
- VI. WHAT IS COST OF ACTION (ESTIMATE)?
One time (Start-up) Cost - \$50,000 to \$100,000
Annual Operation and Maintenance Cost – not determined
- VII. WHO FINANCES?
Financial responsibility has not been determined.
- VIII. WHAT ARE THE BENEFITS (ENVIRONMENTAL OR ECONOMIC) FROM IMPLEMENTATION?
The benefits from implementation include the reduction of derelict fishing gear in the sea and on the coast based upon effective community-specific outreach.
- IX. IDENTIFY THE RESOURCES (LIVING OR PHYSICAL) AFFECTED BY ACTION:
Affected resources have not been determined.

SURVEY OF SUBMERGED MARINE DEBRIS:
A PERSISTENT AND ONGOING THREAT TO
ENDANGERED HAWAIIAN MONK SEALS

Monitoring, Enforcement, And Removal

Entanglement in marine debris is a threat to the recovery of the critically endangered Hawaiian monk seal (*Monachus schauinslandi*). From 1996 to 1998, preliminary studies were conducted at French Frigate Shoals and at Pearl and Hermes Reefs in the Northwestern Hawaiian Islands to assess and remove marine debris. Divers towed from small boats conducted 7.5 km long line transect surveys of nine representative geographic stations to depths of 10 m and surveyed a total area of 1.2 km2. Debris was systematically documented using Global Positioning Systems, video and still photography and opportunistically removed. The density of derelict net and debris fragments encountered in a transect ranged from 0 to 23 nets ranging in size from 0.1 m2 to 30.0 m2. The highest encounter rates were on reefs exposed to prevailing wind and seas, and the lower rates on leeward reefs. Divers removed 3548 kg of nets. Derelict nets are known to entangle Hawaiian monk seals, fish, lobsters, coral heads, and cetaceans, but the rate of entanglement is extremely difficult to quantify. Entangled coral comprised approximately 20% of the total weight of the debris removed. The amount of dredged coral not retained by the nets is unknown. These preliminary surveys demonstrate that derelict nets represent a significant threat to Hawaiian monk seals due to entanglement and habitat degradation. Future work will address the rate of debris accumulation, facilitate efficient cleanup efforts of the nearshore reefs of the Northwestern Hawaiian Islands, identify the sources of the debris and initiate international programs to eliminate this pollution.



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Chad Yoshinaga,
courtesy of NMFS

CHARACTERISTICS OF DERELICT
TRAWL NET AT TWO OCEANIC ISLANDS,
ONE TROPICAL AND ONE SUBARCTIC

Monitoring, Enforcement, And Removal

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Derelict trawl net is an entanglement hazard to marine life. Lisianski Island (26 N, 174 W), in the Northwestern Hawaiian Islands, is one of the main breeding sites of the endangered Hawaiian monk seal (*Monachus schauinslandi*). St. Paul Island (57 N, 171 W), in the Pribilof Islands, is the largest breeding site of the depleted northern fur seal (*Callorhinus ursinus*). Both species suffer entanglement in derelict trawl nets, and trawl netting commonly washes up on the beaches of both islands. Extensive trawl fisheries occur in the Bering Sea and Gulf of Alaska providing a potential source for derelict fishing gear on St. Paul Island. No trawl fisheries occur in the region of the Hawaiian Islands. Here, we compare derelict trawl nets from the beaches of the two islands. Nets were recovered from Lisianski Island from 15–17 October 1999 and St. Paul Island 15–18 May 2000. Nets from the two islands were compared using four different characteristics: color, construction, eye size, and twine diameter. The characteristic of construction consisted of three sub-categories: manufacture of the net, twine twist, and number of strands in the twine. Of the forty nets sampled from St. Paul Island, 5 (12%) were identical to nets sampled at Lisianski Island. An additional twelve nets (30%) shared all but one characteristic. The remaining 23 nets (58%) had two or more characteristics that differed between islands. The comparison of net samples demonstrates that some derelict trawl net from both sites has similar characteristics and possibly similar sources.

DERELICT FISHING GEAR IN THE
NORTHWESTERN HAWAIIAN ISLANDS:
DIVING SURVEYS AND DEBRIS REMOVAL AT TWO ATOLLS
CONFIRMS THREAT TO CORAL REEF ECOSYSTEMS

Monitoring, Enforcement, And Removal

Marine debris of a maritime origin, particularly derelict fishing gear, threatens the coral reef ecosystems of the Northwestern Hawaiian Islands (NWHI). Derelict fishing gear entangles and kills endangered Hawaiian monk seals (*Monachus shauinslandi*), threatened green sea turtles (*Chelonia mydas*) and other wildlife, as well as damages coral substrate. We describe a multi-agency effort to survey and remove derelict fishing gear from two NWHI atolls in autumn 1999. Distribution, density, type, and epibiont encrustation of derelict fishing gear at Lisianski Island and Pearl and Hermes Reef was documented using snorkel divers towed behind small boats. Debris was recovered using small boats and divers supported by National Oceanic and Atmospheric Administration and United States Coast Guard vessels. A total of 8.4 metric tons of derelict fishing gear was recovered from the atolls’ coral reefs and an additional 5.7 metric tons from the atolls’ beaches. Coral reef debris density ranged from 1.0 to 62.2 pieces/km². Trawl netting was the most frequent type of debris encountered (88%). Trawl netting also represented the greatest component of debris recovered by mass (35%), followed by monofilament gillnet (34%), and miscellaneous maritime line (23%). Most debris recovered (72%) had light or no epibiont encrustation, suggesting debris was resistant to fouling organisms or had short oceanic circulation histories. This study demonstrates that, despite widespread ratification of MARPOL Annex V, derelict fishing gear poses a persistent and lethal threat to the coral reef ecosystems of the Hawaiian Islands Archipelago.

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NORTHWESTERN HAWAIIAN ISLANDS MARINE DEBRIS RECOVERY EFFORT

Monitoring, Enforcement, And Removal

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The Northwestern Hawaiian Islands include two significant National Wildlife Refuges (NWR) and one Hawai’i State wildlife sanctuary. The islands from Nihoa to Pearl and Hermes Reef comprise the Hawaiian Islands NWR, whereas Midway Atoll is managed as a separate NWR. For the past two and half years the U.S. Fish and Wildlife Service (USFWS) has joined in an effort with a number of other federal, state, and private organizations to remove marine debris from the coral reefs within these refuges as well as the state wildlife sanctuary Kure Atoll. This effort is now moving to a second phase of monitoring marine debris accumulation rates throughout the Northwestern Hawaiian Islands. Additionally, a ten year marine debris removal effort will continue at French Frigate Shoals wherein the USFWS field station collects marine debris from the beaches at Tern Island every two weeks. All of this work has removed over 35 tons of debris that would otherwise cause destruction of the reefs, and ultimate death of many other marine and avian creatures. An estimated 4,000 tons of marine debris still remain in the Northwestern Hawaiian Islands.

KAHUKU BEACH CLEAN UP

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FINDING SOLUTIONS TO MARINE DEBRIS IN THE ARAFURA SEA

Monitoring, Enforcement, And Removal

The Arafura Sea is an important commercial region with busy shipping routes and lucrative commercial fishing areas. Despite this, much of the region is sparsely populated and coastal areas remain largely untouched by development. Indigenous people own much of the vast coastline and utilize marine resources for food and cultural purposes. A variety of threatened marine species are dependent on a range of internationally recognized habitats in the region. These species, habitats, and people are increasingly suffering the impacts of marine debris. Marine debris in the Arafura Sea region is a cross-border concern both in terms of its impacts and sources: the majority of debris washing ashore in northern Australia is attributed to Southeast Asian fishing operations, while a significant proportion also originates from Australia’s prawn (shrimp) trawling fleet. As a consequence, finding solutions to marine debris in the Arafura Sea is both challenging and complex. This poster details three principal aspects to marine debris issues in the Arafura Sea region—cultural considerations, ecological impacts, and regional issues. It introduces a framework of action embracing activities at local, national, regional, and international scales. Actions include research, fieldwork, and policy initiatives, some of which are currently underway. Many initiatives now under development offer opportunities for international collaboration to address marine debris in the Arafura Sea, and links with international activities and agencies are sought.

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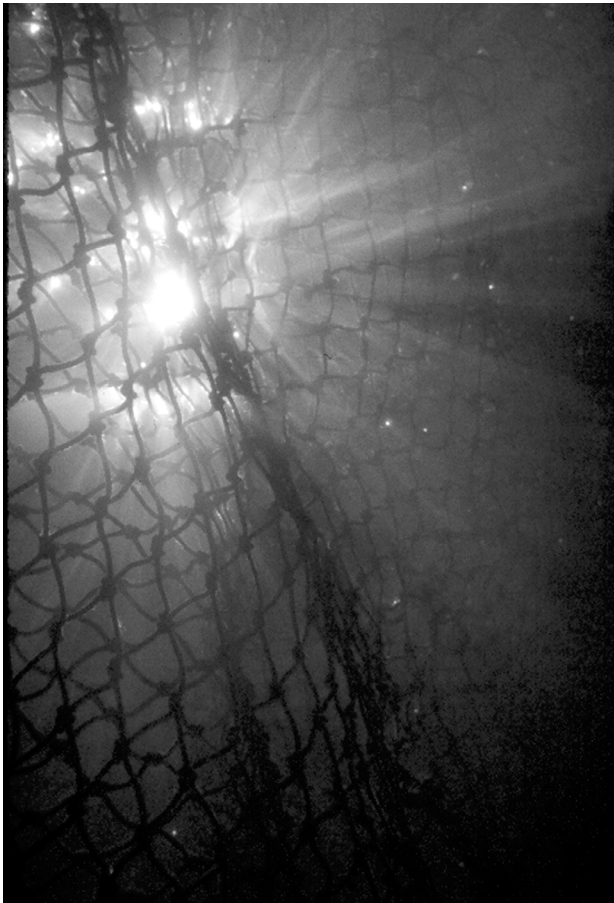
ABUNDANCE OF PLASTIC DEBRIS AND
INGESTION BY ALBATROSS ON KURE ATOLL,
NORTHWESTERN HAWAIIAN ISLAND

Monitoring, Enforcement, And Removal

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A pilot study to investigate the abundance of disposable cigarette lighters and Cyalume chemical lightsticks with the incidence of ingestion by albatross was conducted at Kure Atoll, Northwestern Hawaiian Islands. A total of 857 cigarette lighters and 200 lightsticks were collected opportunistically between 25 May and 23 July 1999. To examine occurrence of plastics ingested by black-footed albatross (*Phoebastria nigripes*) and Laysan albatross (*P. immutabilis*), 43 samples were collected consisting of boluses (regurgitations) and chick carcasses. Plastics occurred in 100% of samples, disposable cigarette lighters occurred in 30% of Laysan albatross samples (n = 26), and no lightsticks were recovered. Items found in Laysan albatross samples included: squid beaks; plastic pieces and chips of various sizes; resin pellets; plastic caps, tubing, bags and toys; disposable cigarette lighters; toothbrushes; fishing floats; Styrofoam; pumice stones; walnuts; and neoprene material. Black-footed albatross boluses (n = 17) consisted mainly of squid beaks and monofilament nylon line. A correlation may exist between availability of plastics in a region and seabirds in the community that ingest plastics. To quantify abundance of items in beach debris at Kure Atoll we recommend continued collection of cigarette lighters and Cyalume lightsticks. In terms of conservation, to investigate negative impacts of ingested plastics on reproductive success of albatross, future bolus collections and necropsies of deceased chicks is necessary.



Ray Boland courtesy
of NMFS

FORAGING EFFORT RESPONSES OF
NORTHERN FUR SEALS TO ENTANGLEMENT IN
DERELICT FISHING GEAR FRAGEMENTS

Monitoring, Enforcement, And Removal

Increases in the rate of entanglement of northern fur seals (*Callorhinus ursinus*) at the Pribilof Islands in the Bering Sea in the 1970s and 1980s correlated with a substantial decline in the fur seal population. To evaluate the effects of small pieces of entangling net on the foraging success of fur seals we compared the foraging patterns of young northern fur seal males that were and were not naturally encumbered with net fragments using small data recorders glued to the seals’ dorsal pelage. All seals departed the hauling grounds within five days of tagging. One entangled seal was not seen again. The two others were at sea about twice as long as the non-entangled seals. All seals dove more often and shallower at night (2330 to 0700 h) than during the day. Entangled and non-entangled seals dove at similar rates (p > 0.95). However, the dives of the entangled males were always shallower than those of the non-entangled males. At similar depths, dives of entangled seals were shorter than those of the non-entangled seals. These data suggest that small pieces of entangling net may affect foraging efficiency. But it is unclear whether these differences are great enough to compromise the seals’ health and survival. Nonetheless, determining these effects is important for prioritizing research and management responses to concerns about the impacts of derelict fishing gear on these and other marine fauna.

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ASSESSING THE RISKS OF REEF-HUNG DERELICT FISHING GEAR ON HAWAIIAN MONK SEALS: MATCHING FORAGING HABITAT WITH DEBRIS DISTRIBUTION IN THE NORTHWESTERN HAWAIIAN ISLANDS

Monitoring, Enforcement, And Removal

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The Hawaiian monk seal (*Monachus schauinslandi*) is endemic to the Hawaiian Islands. Its metapopulation declined steadily from the 1950s through the early-1990s, but has been relatively stable at around 1,300 to 1,400 since 1993. Poor juvenile survival appears to be the proximate cause of the long-term decline though the ultimate cause is uncertain. One known factor contributing to mortality is entanglement in derelict commercial fishing gear, evidently originating from high seas and remote commercial fisheries. We compared the foraging patterns of monk seals at Pearl and Hermes Reef, using satellite-linked transmitters, with the distribution of derelict fishing gear to assess debris threats to monk seal vitality and to guide management and conservation measures. Monk seals segregated by age and sex while foraging within the atoll at Pearl and Hermes Reef. The key areas used by juveniles were those in the interior eastern end of the atoll, areas of heavy pollution by derelict fishing gear. The removal of such debris may be key to the recovery of this endangered species, particularly in those areas which can be identified as foraging and transit areas for pups and juveniles who are most vulnerable to entanglement. Moreover, more effective prevention and monitoring of loss and dumping of this debris in remote commercial fisheries is key to range-wide conservation and management of monk seals and other biological resources in the Hawaiian Islands marine ecosystem.

GET THE DRIFT AND BAG IT!

Ocean Stewardship, Education, and Outreach

Experts with the University of Hawai'i Sea Grant college program say about 80% of trash found on Hawai'i beaches comes from land sources. When trash litters Hawai'i beaches, chokes mountain streams, and pollutes coastal waters, it becomes the scourge known as marine debris, a man-made menace that endangers fish and wildlife, smothers coral reefs, and generally wreaks havoc on Hawai'i's fragile ecosystems. Each year, Hawai'i Sea Grant partners with the Hawai'i Coastal Zone Management program to coordinate the cleanup of coastlines, streams, and waterways throughout the islands in its "Get The Drift and Bag It!" program—Hawai'i's contribution to the International Coastal Cleanup effort sponsored by the Center for Marine Conservation. Sea Grant has participated in "Get The Drift and Bag It!" since 1988 and took over its statewide coordination in 1995. Since then, volunteers from the main Hawaiian islands have been collecting cleanup data, which help in the identification of site-specific debris problems, providing essential information as to the scope and locations of marine debris impacting Hawai'i's marine and coastal environment. Last year, 4,279 Hawai'i volunteers walked 153 miles and picked up 216,598 pounds of debris on land and underwater. Offending debris included: cigarette butts, bits of plastic, glass, paper and styrofoam, plastic bags, metal bottle caps, bottles, and soda cans. This year's statewide "Get The Drift and Bag It!" is scheduled for Saturday, September 16.

ABANDONED FISHING GEAR REMOVAL EXERCISES IN HONG KONG'S MARINE PARKS

The territory of Hong Kong has a rich collection of aquatic animals and plants, such as corals, sea grasses, and dolphins. In order to protect and conserve the marine environment, the Marine Parks Ordinance was enacted in 1995. It provides the legal framework for the designation, control, and management of marine parks and marine reserves. In 1996, three marine parks and one marine reserve were designated in Hong Kong. They comprise scenic coastal areas, seascapes, and important marine habitats. They are Hoi Ha Wan Marine Park, Yan Chau Tong Marine Park, Sha Chau and Lung Kwu Chau Marine Park and Cape D'Aguilar Marine Reserve, covering a total area of 2,160 hectares. Marine parks and reserves are managed for conservation, education, recreation, and scientific studies. In marine parks, visitors are encouraged to appreciate the beauty and diversity of marine life. Diving, snorkeling, swimming, canoeing, sailing, underwater photography, and school

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Ocean Stewardship, Education, and Outreach

visits are popular activities in marine parks. Destructive fishing activities such as trawling and dynamite fishing are prohibited whereas non-destructive fishing by bona fide fishermen and local villagers is controlled in marine parks through a permit system. To improve the environment of marine parks, the department has organized several abandoned fishing gear removal exercises since 1995 with voluntary divers, students, local villagers and fishermen from a number of organizations. Some of them were carried out on the International Coastal Cleanup Day and the Earth Day. In addition, seminars and code of good fishing practice are given to the fishermen in marine parks with a view to increasing their understanding of the adverse effects of abandoned fishing.

KUKULU KE EA A KANALOA:
RESTORING KAHO'OLAWE

Kaho'olawe is Hawai'i's eighth island. The 45 square mile island and 90 square miles of surrounding ocean comprise the Kaho'olawe Island Reserve. The Reserve is undergoing a physical and spiritual transformation: no longer a U.S. Navy bombing target and now becoming a refuge for Native Hawaiian cultural, spiritual, and subsistence purposes. In ancient times the island was called Kanaloa for the god of the ocean. It was a place for training navigators and kahuna and served as a point of departure for long ocean voyages. A number of major currents between the islands converge around Kaho'olawe. One interpretation of the name Kaho'olawe is to be carried by currents. There are a number of historical accounts of people surviving shipwrecks between islands and making their way to Kaho'olawe and several dead whales have drifted to its shores over the past few decades. There is a lot of marine debris on the bays and beaches of Kaho'olawe's northern and eastern coasts with the greatest amount at Kanapou Bay. There has been limited public access to the island since the start of World War II. The Navy allowed community beach cleanups in the past, but the practice has been prohibited since 1994. As the Navy completes its bomb cleanup of the island and relinquishes access control, the Kaho'olawe Island Reserve Commission, which manages the Reserve, hopes to assist in regular beach cleanups and surveys.

ELECTRALUME:
THE NEXT GENERATION OF FISHING LIGHTS

Debris Prevention and Legal Issues

Electralume is a new battery-driven lightstick developed to reduce marine pollution. This new lightstick is negatively buoyant and reusable. Made from a durable clear U/V treated polycarbonate, the Electralume is easily attached to monofilament line with a snap attachment and uses standard AA batteries. Electralume easily replaces disposable plastic lightsticks in fishing operations and makes good economic sense. One set of batteries can last for over 30 sets. This means that longline fishermen will not have to change the batteries until they reach dockside.

PACIFIC WHALE FOUNDATION, MAUI, HAWAI'I

Pacific Whale Foundation has a long and proud history of identifying the problem of marine debris in Hawai'i, and being proactive in the search for solutions to cleaning it up. Our organization helped pioneer the 'Get the Drift and Bag It' statewide marine debris clean-up, including Kaunapo Bay on the island of Kaho'olawe. Pacific Whale Foundation identified Kaho'olawe as an important site because, as an uninhabited island, all the debris items collected there are truly marine generated. Our student marine survey addresses the source, quantity, and quality of marine debris found in Maui's beaches, giving kids a chance to participate in the scientific process for the betterment of their world.

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MARINE DEBRIS IN THE NORTH PACIFIC
CENTRAL GYRE, 1999 WITH THE FIRST BIOMASS
COMPARISON OF NEUSTONIC PLASTIC AND PLANKTON

Other

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Plastics in the ocean persist long after the objects of which they were a part break down. Studies in the North Pacific indicate that both large floating (macro) plastic and smaller (neuston) fragments are increasing, however, no studies exist to assess the potential effects of plastic particles on filter feeding marine organisms. To assess the potential effects of ocean plastics on filter feeding biota, plankton nets sampling the top six inches of ocean surface were towed at eleven randomly selected locations in the North Pacific Central Gyre during August, 1999. The collected samples were separated into plastic and plankton fractions, then weighed and counted to compare the mass and number of plastic particles to plankton. Plankton was sorted by class, and plastic particles by size class and color. While towing for plankton, large floating (macro) debris was collected with an inflatable dinghy. Our survey resulted in the highest mean weight (5,114 g/km²) and abundance (334,271 pieces/km²) of neuston plastic ever calculated for this area. The mass of plastic particles was six times higher than the mass of plankton (841 g/km²), while the total number of planktonic organisms (1,837,342 /km²) was five times the number of plastic pieces. Numbers of particles did not increase in successively smaller size classes, indicating there may be non-selective removal by mucus web-feeding biota, and indeed, salps with poly line and plastic fragments firmly embedded in their tissue were collected. Neuston plastic types in order of abundance were: miscellaneous fragments, thin films, woven poly/monofilament line, styrofoam, and pellets.



Mark Sramek (NOAA),
courtesy of NMFS

STUDENT ACTIVITIES

Students from seven different islands in the South Pacific, Hawai'i, and Alaska attended the International Marine Debris Conference to share their concerns about the coastal and marine environment. Coordinated by Patty Miller, Hawai'i science teacher and education committee chair for the Hawaiian Islands Humpback Whale National Marine Sanctuary, the "Trash Busters" were chosen to participate based on their motivation and interest in preserving a clean marine environment. They contributed their perspectives on marine debris issues in Hawai'i, Palau, Rota, American Samoa, Commonwealth of the Northern Mariana Islands, Papua New Guinea, Majuro, Marshall Islands, and St. Paul Island, Alaska.

The student's participation took many forms. The day before the conference, the students cleaned up trash from a site adjacent to Lagoon Drive near the Honolulu Airport. They used the debris, consisting of plastic, rope and netting, to construct a conceptual art piece for display in the conference exhibit room. For their first oral presentation the students premiered a video which they had developed prior to the Conference. The video portrayed student's concerns about the detrimental effects of derelict fishing nets, plastics and rope on the marine environment. After airing the video, each student posed a set of questions to the experts in attendance. Examples of questions asked included:

- "How can we encourage people to protect the environment?"
- "Why aren't manufacturers making biodegradable plastics?"
- "Can't we figure out where the marine debris is coming from?"
- "How do we monitor marine debris dumping?"

Bob Rock, Marine Debris
Communications Committee

**The "Trashbusters" gather
at the International
Marine Debris Conference.**



STUDENT ACTIVITIES



Bob Rock, Marine Debris Communications Committee

This marine debris sculpture designed by the "Trashbusters", demonstrates an artful way of cleaning up the ocean.

After listening to the experts present their work to the conference participants during the week, the students compiled a list of their own recommendations on how to reduce derelict fishing gear and marine debris. For their final appearance before the audience, the students arrived colorfully dressed as their favorite sea creatures, and reacted as they imagined that the creatures would to chemicals, nets, oil, plastics, and other debris entering their habitat. As creatures of the sea, they described their main functions, and explained how debris affected their lives. Lastly, they shared their views on how to begin to solve this complex issue. Examples of the recommendations given include:

- u “Add more trash cans which are convenient for people, and where they will not wash away.”
- u “Schools should fund programs for beach cleanup, where the students would be given class credit. Also, schools could start an “adopt a beach” program, where they are each responsible for maintaining a certain section.”
- u “Since many small islands do not have recycling programs in place, attempt to obtain the funds to begin the program. In addition, teach the islanders to recycle and make better choices on which products they decide to use.”
- u “For reducing problems associated with oil spills, put oil in separate smaller containers to minimize the problem if a puncture does occur.”
- u “Force the companies who run the oil rigs to pay for the cleanup, as well as the fine for spills.”
- u “To reduce coral destruction, monitor the vessels that are known to transport toxins and chemicals to reduce illegal dumping.”
- u “Develop environmentally safe chemicals to use in golf courses and agricultural fields to reduce damage to coral reefs from runoff.”
- u “Learn how to identify fishing nets which injure marine animals, and require fishing boats to use animal safe fishing gear.”
- u “Outline public education programs to “reduce, reuse and recycle” and, especially, get the children involved at an early age.”

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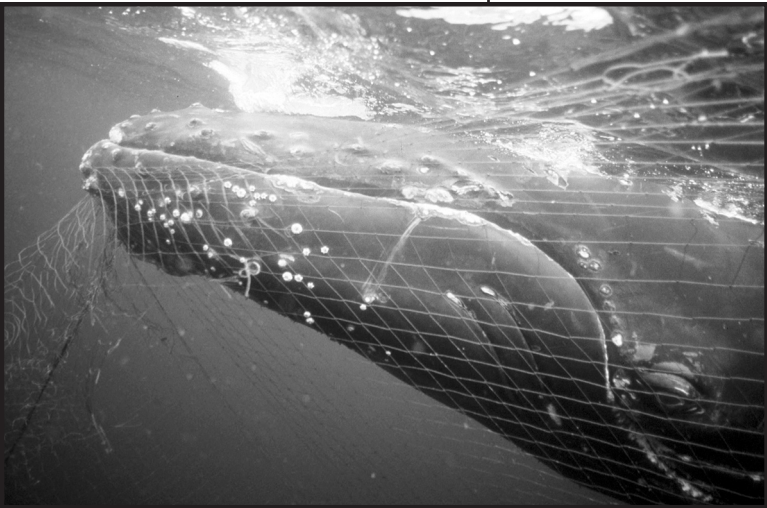
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International Marine Debris Conference
On Derelict Fishing Gear and the Ocean Environment
August 6 – 11, 2000

CONFERENCE PROGRAM	
SUNDAY, AUGUST 6	
2:00-6:00 PM	EARLY CONFERENCE REGISTRATION Room 317A
MONDAY, AUGUST 7	
7:30 AM	CONFERENCE REGISTRATION Room 317A
8:30	CONFERENCE CONVENES Room 313
	<ul style="list-style-type: none">• Welcome Allen Tom, Sanctuary Manager, Hawaiian Island Humpback Whale National Marine Sanctuary, Hawai'i Kitty M. Simonds, Executive Director, Western Pacific Regional Fishery Management Council, Hawai'i• Opening Remarks Honorable Jeremy Harris, Mayor, City and County of Honolulu, Hawai'i Jim Cook, Chairman, Western Pacific Fishery Management Council, Hawai'i• Review of Past Marine Debris Workshops James M. Coe, Acting Science and Research Director, National Marine Fisheries Service, Alaska Fisheries Science Center, Washington
	THE SCOPE OF THE DERELICT FISHING GEAR PROBLEM
	<ul style="list-style-type: none">• Origins, Types, Distribution and Magnitude of Derelict Fishing Gear CDR Rusty E. Brainard, Ph.D., Science Program Coordinator and Oceanographer, National Marine Fisheries Service and NOAA Corps, Hawai'i
	DISCUSSION
10:15	BREAK
10:35	<ul style="list-style-type: none">• The Ecological Impacts of Derelict Gear Charles W. Fowler, Ph.D., Program Leader for the Systemic Management Studies Program, National Marine Fisheries Service, Alaska Fisheries Science Center, National Marine Mammal Laboratory, Washington• The Economic Costs of Derelict Gear Samuel G. Pooley, Ph.D., Chief, Fishery Management and Performance Investigation, National Marine Fisheries Service, Hawai'i• Navigational Hazards and Public Safety



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Allen Tom, Manager of the Hawaiian Islands Humpback Whale National Marine Sanctuary, extends aloha to Conference participants.

International Marine Debris Conference
On Derelict Fishing Gear and the Ocean Environment
August 6 – 11, 2000

CONFERENCE PROGRAM

	LT Lane D. Johnson , Port Operations, Waterways Management, Marine Response/Prevention, United States Coast Guard, 14th District, Hawai'i
	DISCUSSION
12:00 PM	LUNCH AND KEYNOTE ADDRESS:
	<ul style="list-style-type: none">Society's Role and Obligations as Stewards of the Ocean Environment Honorable Daniel K. Inouye, United States Senator, Hawai'i
1:30	<ul style="list-style-type: none">Student Views of the Marine Debris Problem
	CURRENT EFFORTS TO ADDRESS DERELICT FISHING GEAR
	<ul style="list-style-type: none">International and Domestic Initiatives: Implementation, Enforcement, and Compliance (MARPOL Annex V) CDR Paula S. Carroll, Chief, Marine Response Branch, United States Coast Guard, 14th District, Hawai'iRemoval/Mitigation Efforts Mary Donohue, Ph.D., Marine Debris Coordinator, Joint Institute for Marine and Atmospheric Research and National Marine Fisheries Service, Hawai'i
	DISCUSSION
3:10	BREAK
3:30	<ul style="list-style-type: none">Monitoring and Data Collection Activities W. James Ingraham, Jr., Oceanographer, NOAA/National Marine Fisheries Service, Alaska Fisheries Science Center, Washington Charles G. Barr, Program Manager, Center for Marine Conservation, Washington, D.C.Technological Advancements RDML Larry C. Baucom, United States Navy Director, Environmental Protection, Safety and Occupational Health Division, Office of the Chief of Naval Operations, United States Navy, Virginia Anthony L. Andrady, Ph.D., Program Manager and Senior Research Scientist, Research Triangle Institute, North Carolina
	DISCUSSION
5:00	ADJOURN
TUESDAY, AUGUST 8	
7:30 AM	CONFERENCE REGISTRATION Room 317A

International Marine Debris Conference
On Derelict Fishing Gear and the Ocean Environment
August 6 – 11, 2000

CONFERENCE PROGRAM

8:00	CALL TO ORDER Room 313
	<ul style="list-style-type: none">Welcoming Remarks Honorable Daniel K. Akaka, United States Senator, Hawai'i (via video)
	CURRENT EFFORTS TO ADDRESS DERELICT FISHING GEAR
	<ul style="list-style-type: none">Industry Actions/Considerations Dayton "Lee" Alverson, Ph.D., Chairman of the Board, Natural Resources Consultants, WashingtonEducation/Outreach Seba B. Sheavly, Director, Marine Debris Prevention Program, Center for Marine Conservation, Virginia MCPO Linda Reid, Director, Sea Partners Campaign, United States Coast Guard, Washington, D.C.Cooperative Partnerships Gary Dunlin, Gear Technologist, Seafish Authority, United Kingdom CAPT Terry Rice, Chief, Marine Safety Division, United States Coast Guard, 14th District, Hawai'i George "Bud" Antonelis, Ph.D., Chief, Protected Species Investigation, National Marine Fisheries Service, Hawai'i
	DISCUSSION
	<ul style="list-style-type: none">Planning As Ocean Stewards Daniel J. Basta, Acting Director, NOAA/National Ocean Services, Marine Sanctuaries Program, Maryland
10:00	BREAK
10:15	WORKING GROUP PANEL PRESENTATIONS
	<ul style="list-style-type: none">Group A: Prevention and Legal Issues Rooms 316A and 316B/C Chairs: James M. Coe, Acting Science and Research Director, National Marine Fisheries Service, Alaska Fisheries Science Center, Washington CDR Paula S. Carroll, Chief, Marine Response Branch, United States Coast Guard, 14th District, Hawai'i Panelists: Margaret Cummisky, Senior Legislative Assistant, Office of Senator Daniel K. Inouye, Washington, D.C. Anamarija Frankic, Ph.D., Environmental Consultant, Global Environment Facility, The World Bank, Virginia Michael Julian, Chairman, Marine Environment Protection Committee, International Maritime Organization and Executive Manager, International Relations, Australian Maritime Safety Authority, Australia

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	<p>Holly R. Koehler, Foreign Affairs Officer, Office of Marine Conservation, Bureau of Oceans and International Environmental and Scientific Affairs, United States Department of State, Washington, D.C. CDR John W. Koster, , United States Coast Guard, 11th District, California Brent S. Stewart, Ph.D., Senior Research Biologist, Hubbs-Sea World Research Institute, California and Marine Science and Foreign Affairs Officer Diplomacy Fellow, American Association for the Advancement of Science, Office of Marine Conservation, Bureau of Oceans and International Environmental and Scientific Affairs, United States Department of State, Washington, D.C.</p> <ul style="list-style-type: none">Group B: Reducing Impacts of Gear Rooms 314 and 315 Chair: H. Arnold Carr, Senior Marine Fisheries Biologist, Massachusetts Division of Marine Fisheries, Massachusetts Panelists: Gerald Brothers, Coordinator-Conservation Technology, Fisheries Management Branch, Department of Fisheries and Oceans, Canada Gary Dunlin, Gear Technologist, Seafish Authority, United Kingdom Murray R. Gregory, Ph.D., Professor, Department of Geology, The University of Auckland, New Zealand Jim Ludwig, Ph.D., Certified Senior Ecologist ESA and President, The Sere Group, Ltd., Canada James Maragos, Ph.D., Coral Reef Biologist, U.S. Fish and Wildlife Service, Hawai'iGroup C: Source Identification Rooms 301 and 312 Chair: John R. Henderson, Fishery Biologist, Marine Mammal Research Program, National Marine Fisheries Service, Hawai'i Panelists: Al Burch, Executive Director, Alaska Draggers Association, Alaska Dave Foley, Coordinator, NOAA Coastwatch/JIMAR, Hawai'i David King, Fishing Gear Specialist, National Marine Fisheries Service, Alaska Fisheries Science Center, Washington Rick Steiner, Conservation Specialist, University of Alaska Marine Advisory Program, Alaska <tr><td>12:00 PM</td><td>LUNCH ON YOUR OWN</td></tr> <tr><td>1:30</td><td>WORKING GROUP DISCUSSION<ul style="list-style-type: none">Group A: Prevention and Legal Issues Rooms 316A and 316B/CGroup B: Reducing Impacts of Gear Rooms 314 and 315Group C: Source Identification Rooms 301 and 312</td></tr> <tr><td>5:30</td><td>ADJOURN</td></tr> <tr><td>6:00</td><td>GOVERNOR'S RECEPTION One Washington Place</td></tr>	12:00 PM	LUNCH ON YOUR OWN	1:30	WORKING GROUP DISCUSSION <ul style="list-style-type: none">Group A: Prevention and Legal Issues Rooms 316A and 316B/CGroup B: Reducing Impacts of Gear Rooms 314 and 315Group C: Source Identification Rooms 301 and 312	5:30	ADJOURN	6:00	GOVERNOR'S RECEPTION One Washington Place
12:00 PM	LUNCH ON YOUR OWN								
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5:30	ADJOURN								
6:00	GOVERNOR'S RECEPTION One Washington Place								

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	<ul style="list-style-type: none">Remarks D. James Baker, Ph.D., Under Secretary, United States Department of Commerce, Washington, D.C. Honorable Eni F. H. Faleomavaega, Representative, United States Congress, American Samoa Timothy Johns, Chairman, Department of Land and Natural Resources, Hawai'i
WEDNESDAY, AUGUST 9	
8:30 AM	SPECIAL SESSION <ul style="list-style-type: none">Viewpoint of the Administration D. James Baker, Ph.D., Under Secretary, United States Department of Commerce, Washington, D.C.
10:00	WORKING GROUP PANEL PRESENTATIONS AND DISCUSSION <ul style="list-style-type: none">Group D: Industry Room 315 Chair: Dayton "Lee" Alverson, Ph.D., Chairman of the Board, Natural Resources Consultants, Washington Panelists: Jim Cook, Chairman, Western Pacific Fishery Management Council, Hawai'i Steven H. Hendrickson, General Manager, Recycling Division/Partner, Skagit River Steel and Recycling, Washington Peter Leipzig, Executive Director, Fisherman's Marketing Association, California Brent Paine, Executive Director, United Catcher Boats, Washington Robert Zuanich, Executive Director, Purse Seine Owners Association, WashingtonGroup E: Monitoring and Removal Rooms 316A and 316B Chair: Mary Donohue, Ph.D., Marine Debris Coordinator, Joint Institute for Marine and Atmospheric Research and National Marine Fisheries Service, Hawai'i Panelists: CDR Rusty E. Brainard, Ph.D., Science Program Coordinator and Oceanographer, National Marine Fisheries Service and NOAA Corps, Hawai'i Ilse Kiessling, Ph.D., Natural Resource Policy Manager, World Wide Fund for Nature, Tropical Wetlands of Oceania Program, Australia Tatsuro Matsuoka, Professor, Faculty of Fisheries, Kagoshima University, Japan Daniel Torres N., Professor, Instituto Antartico Chileno, Chile Nina Young, Director, Marine Wildlife Conservation, Center for Marine Conservation, Washington, D.C.

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- Group F: Education and Outreach Rooms 301, 312 and 314
Chair:
Emily Morgan, Director, Citizen Outreach and Monitoring Center for Marine Conservation, Washington, DC,.
Panelists:
Gael Arnold, Director, Island Care New Zealand Trust, New Zealand
Hung-Chi Liao, Director, Kuroshio Ocean Education Foundation, Taiwan
MCPO Linda J. Reid, Director, Sea Partners Campaign, United States Coast Guard, Washington, D.C.
Seba B. Sheavly, Director, Marine Debris Prevention Campaign, Center for Marine Conservation, Virginia
John Wang, Scientific and Conservation Advisor, Kuroshio Ocean Education Foundation, Taiwan
Christine Woolaway, University of Hawai’i, Sea Grant Extension Service, Hawai’i

12:00 PM LUNCH AND PANEL:

- Bridging the Policy, Science and Management Stream
Honorable Neil Abercrombie, Representative, United States Congress, Hawai’i
Rebecca Lent, Ph.D., Southwest Regional Administrator, National Marine Fisheries Service, California
Roger Rufe, President, Center for Marine Conservation, Washington, D.C.
Michael Julian, Chairman, Marine Environment Protection Committee, International Maritime Organization and Executive Manager, International Relations, Australian Maritime Safety Authority, Australia

1:30 WORKING GROUP DISCUSSION (continued)

- Group D: Industry Room 315
- Group E: Monitoring and Removal Rooms 316A and 316B
- Group F: Education and Outreach Rooms 301, 312 and 314

4:00-7:00 POSTER AND EXHIBITOR RECEPTION Room 311

THURSDAY, AUGUST 10

8:30 AM CALL TO ORDER Room 313

- Reports on Working Group Recommendations
- Report on Student Recommendations

10:15 BREAK

10:30 • Working Group Discussion

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12:00 PM LUNCH ON YOUR OWN

1:30 • Recommendation Teams

3:00 BREAK

3:15 • Recommendation Teams (continued)

5:00 ADJOURN

6:30-10:00 LU’AU Bishop Museum

FRIDAY, AUGUST 11

8:30 AM CALL TO ORDER

- Keynote Address
Jean Michel Cousteau, President, Ocean Futures Society, California

- Poster Unveiling
Jean Michel Cousteau and **Robert Lyn Nelson**

- Reports on Recommended Actions

DISCUSSION

10:00 AM BREAK

- A Challenge for the Future: Taking Action Against Marine Debris
Daniel J. Basta, Acting Director, NOAA/National Ocean Services, Marine Sanctuaries Program, Maryland

- Conference Resolution

- Comments from Participants

- Closing Remarks
’Akau’ola, Secretary, Ministry of Fisheries, Kingdom of Tonga

- Closing Ceremony

1:00 PM CONFERENCE ADJOURNS

ACRONYMS AND ABBREVIATIONS	
AFPI	American Flag Pacific Islands
AFSC	Alaska Fisheries Science Center, National Marine Fisheries Service
AMRF	Algalita Marine Research Foundation
APHIS	Animal and Plant Health Inspection Service
APPS	Act to Prevent Pollution from Ships
ASTER	Advanced Spaceborne Thermal Emissions and Reflection Radiometer
AVIRIS	Airborne Visible InfraRed Imaging Spectrometer
C&C	City and County of Honolulu
CARA	Conservation and Reinvestment Act
CBD	Convention on Biological Diversity
CCAMLR	Convention for the Conservation of Antarctic Marine Living Resources of 1980
CCSBT	Commission for the Conservation of Southern Bluefin Tuna
CEE	Center for Marine Environmental Education
CIMCO	Convention on the Intergovernmental Maritime Organization
CITES	Council on International Trade and Endangered Species
CMC	Center for Marine Conservation
the Conference	International Marine Debris Conference on Derelict Fishing Gear
CRAMP	Coral Reef Assessment and Monitoring Program
CRE	Coral Reef Ecosystem
CWT	Coded Wire Tag
CZM	Coastal Zone Management Program, Hawai'i
CZMA	Coastal Zone Management Act
DAR	Division of Aquatic Resources, Department of Land and Natural Resources, Hawai'i
DLNR	Department of Land and Natural Resources, Hawai'i
DOC	Department of Commerce
DOD	Department of Defense
DOI	Department of the Interior
DOJ	Department of Justice
DOS	Department of State
DOT	Department of Transportation
EOS	Earth Observing System
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FAD	Fish Aggregation Device
FAO	Food and Agriculture Organization of the United Nations
FDA	United States Food and Drug Administration
FFS	French Frigate Shoals, Northwestern Hawaiian Islands
GIS	Geographic Information Systems
HAPC	Habitat Areas of Particular Concern
HAS	Hawai'i Audubon Society
HCRI	Hawai'i Coral Reef Initiative Research Program
HCZMP	Hawai'i Coastal Zone Management Program
HLA	Hawai'i Longline Association
HOMRC	Hawai'i Ocean and Marine Resources Council
IATTC	Inter-American Tropical Tuna Convention
ICC	International Coastal Cleanup
ICRI	International Coral Reef Initiative
IFQ	Individual Fishing Quotas
IMO	International Maritime Organization
IPOA	International Plan of Action
IOTC	Indian Ocean Tuna Commission
IUCN	International Union for Conservation of Nature and Natural Resources
FIMD	Fate and Impact on Marine Debris
JIMAR	Joint Institute for Marine and Atmospheric Research
KIRC	Kaho'olawe Island Reserve Commission
MARPOL	International Convention for the Prevention of Pollution from Ships
MDIO	Marine Debris Information Office

ACRONYMS AND ABBREVIATIONS	
MEPC	Marine Environmental Protection Committee of IMO
MERP	Marine Entanglement Program
MHI	Main Hawaiian Islands
MHLC	Multi-Lateral High Level Convention
MMC	Marine Mammal Commission
MMPA	Marine Mammal Protection Act
MPA	Marine Protected Area
MPPRCA	Marine Plastics Pollution Research and Control Act
MSFMCA	Magnuson-Stevens Fisheries Conservation and Management Act
MUS	Management Unit Species
NASA	National Aeronautic and Space Administration
NEPA	National Environmental Policy Act
NFI	National Fisheries Institute
NGO	Non-Governmental Organization
nm	nautical miles
NSF	National Science Foundation
NMDMP	National Marine Debris Monitoring Program
NMFS	National Marine Fisheries Service
NMFS-HL	National Marine Fisheries Service - Honolulu Laboratory
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Service
NPDES	National Pollution Discharge Elimination System
NWHI	Northwestern Hawaiian Islands
NWR	National Wildlife Refuge
OEQC	Office of Environmental Quality Control, State of Hawai'i
Pac-Rim	Pacific Rim
PBDC	Pacific Basin Development Council
PFMC	Pacific Regional Fishery Management Council
PFMFC	Pacific States Marine Fisheries Commission
PIAO	Pacific Islands Area Office
PRIA	Pacific Remote Island Areas
PSCO	Port State Control Officer
RCRA	Resource Conservation and Recovery Act
RFO	Regional Fisheries Management Organizations
RFS	Responsible Fisheries Society
ROV	Remotely Operated Vehicles
the Sanctuary	Hawaiian Islands Humpback Whale National Marine Sanctuary
SAC	Sanctuary Advisory Council
SAR	Synthetic Aperture Radar
SEAFDEC	Southeast Asian Fisheries Development Center
SFA	Sustainable Fisheries Act
S-K funds	Saltonstall-Kennedy funds
SPC	Secretariat of the Pacific Community
SPREP	South Pacific Regional Environment Programme
SST	Sea Surface Temperature
HL	Southwest Fisheries Science Center, Honolulu Laboratory
UH	University of Hawai'i
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
USFWS	United States Fish and Wildlife Service
USCG	United States Coast Guard
USCRI	United States Coral Reef Initiative
USPI	United States Pacific Islands
USSD	United States State Department
UV	Ultra Violet
VMS	Vessel Monitoring System
WpacFin	Western Pacific Fisheries Information Network
WPRFMC	Western Pacific Regional Fishery Management Council
WWF	World Wide Fund for Nature